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It appears that Mr. Ricker has not only assisted in the bibliography and citations to diatom literature, but has passed upon the many taxonomic problems involved. The painstaking manner in which this has been done adds greatly to the value of the report.

The new species, together with a few others, are well figured by some very good microphotographs.

GEORGE T. MOORE

Leitfaden für den biologischen Unterricht.

Von K. KRAEPELIN, Direktor des Naturhistorischen Museums in Hamburg. Leipzig und Berlin, B. G. Teubner. 1907.

This little manual forms one of a series devoted to the extension of biological interest and the improvement of teaching in the German schools. Others of the series are devoted explicitly to the teaching of botany and zoology. Of similar import are still others devoted to nature study, for example, "Naturstudien in Wald und Feld"; and "Naturstudien in der Sommerfrische." All of which may be taken as indicative of the broadening and liberalizing movements in education the world over.

This particular book, as its name implies, is devoted to the distinctively biological aspects of nature study, but with reference to the higher schools, as indicated in the full title, "Leitfaden für den Biologischen Unterricht in den Oberen Klassen der Höheren Schulen."

The book comprises something over three hundred pages of well-printed and amply and beautifully illustrated matter. One finds, as the author himself admits, some question as to just where to draw the line of a happy medium between the "Scylla" of too much, and the "Charybdis" of too little; and to the reviewer it seems as if the former rock had been barely missed. At any rate, for American high schools we should regard of doubtful educational value the introduction of the intricate problems of prehistoric man and archeology. It must be said, however, that these are touched upon in the present book in only a very elementary manner.

Something of the scope of the book may be

gathered from the following partial glimpse of the table of contents.

First Section. The dependence of life on the influence of the surrounding world. Of the factors may be mentioned: (1) The *temperature* limits of plant life, and in a later section the same in reference to animal life. (2) Influence of light on plant life. (3) Surrounding media, soil, atmosphere, water, etc.

A section is devoted to the relations of plants to each other, and also to animals, or what we usually understand as ecology. The author employs this and several other terms in designating phases of these relations, going into what seems to the reviewer unnecessary details for an elementary treatise.

The second section is devoted to the "structure and vital activities of the organic world." Under this head are presented some of the more profound and difficult problems of his subject, yet on the whole the treatment is clear and stimulating, though rather difficult for pupils of the age of those concerned.

The third section deals with man as an object of scientific consideration. Brief reference has already been made to phases of this section. In general it deals with the structure and functions of the human body, problems of nutrition, metabolism, etc.

On the whole the book is worthy of cordial approval. It is well printed on good paper, and is marred by very few typographical errors.

CHAS. W. HARGITT

SYRACUSE UNIVERSITY

Elements of Physiology. By THEODORE HOUGH and WILLIAM T. SEDGWICK. Boston, Ginn & Co.

The present book is a reprint of the physiological portion of our larger work entitled "The Human Mechanism," together with chapter XX., . . . which has been added to meet the requirements of law in some states with regard to the teaching of physiology. (From the preface.)

It fell to the lot of the present writer to review the "larger work" referred to above in the issue of SCIENCE for April 19 of the current year. And since the present book is, as stated above, a reprint of the former, it will

only be necessary to briefly refer to a very few points not specially noted in the former.

As the title suggests, the book comprises the *elements* of *physiology*, and this it really is. Few text-books now available for use in the schools under the title of physiology are such in fact. Most are more or less cumbered with anatomy, hygiene, etc., and the physiology is thus confused with other matter. Without here considering the relative merits or demerits of these points, it is worth while emphasizing the fact that in this we have a book of essentially pure physiology, based on adequate and well-established facts. In its size and the scope of its matter it comes well within the time usually given to the subject in the average school. In its mechanical features the book is worthy of all praise. C. W. H.

Practical Physiological Chemistry. By PHILIP B. HAWK, M.S., Ph.D. 416 pages, illustrated. Philadelphia, P. Blakiston's Son & Co. 1907. Price, \$4.00.

The appearance of another work on physiological chemistry is a further evidence of the rapid growth of this department of science in our American universities, and a proof, also, that something more than the old, so-called "medical chemistry" is beginning to find favor in our schools of medicine. This book by Dr. Hawk is written for students of medicine and general science, who have already secured a good groundwork in the more fundamental branches of chemistry, and presents a very good outline of those facts of physiological chemistry which may be clearly demonstrated in a laboratory course. While the title might be taken to indicate that the work is a laboratory manual only this is by no means the case, as many of the discussions are full enough to constitute a general treatise on the subject.

In an experimental way the book presents not only the usual general tests and qualitative reactions, but also a very considerable number of quantitative methods applicable in physiological-chemical investigations. Most of these are clearly described, and are full enough for working conditions, but in a few

cases the value to the student would be greatly increased by the addition of fuller explanations. For example, in describing the determination of total and inorganic sulphates in the urine practically nothing is said concerning the reasons for the several steps, and at first sight the student is very likely to fail to recognize the real distinction between the two processes. A number of similar cases have been noticed.

The mechanical work on the book is most excellent. It is printed from clear type on good paper, and is bound in such a manner that it remains flat when opened on a table, a good quality not very often found in books intended for the laboratory. J. H. LONG

Elements of Physical Chemistry. By HARRY C. JONES. Third Edition. 8vo. Pp. 650. New York, The Macmillan Company. 1907.

This text-book is so well known that the appearance of a new edition calls for only a brief statement in regard to the changes that have been made in it.

The revised edition follows very closely the plan of the first, but it has been somewhat enlarged by the addition of matter pertaining to recent advances in the science. The chief additions deal with Thomson's work on electrons, Morse's work on osmotic pressure, recent work on radioactivity, and there are about twenty pages devoted to the author's hydrate theory and his work on conductivity in mixed solutions. There are many minor changes, and some of the rather complicated cases of equilibrium discussed in the first edition have been wisely omitted. Many references to the original literature have been added, which make the book a valuable one for reference.

H. W. FOOTE

Outlines of Psychology. By WILHELM WUNDT. Translated by C. H. JUDD, Ph.D. Third English from the seventh revised German edition. Leipzig, Wm. Englemann. Pp. xxiii + 392.

The third edition of the English translation of Wundt's "Outlines" brings the work to the English-speaking student as it appears in